

## Climate Downscaling forecasts over Northeast Brazil

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The International Research Institute for climate prediction (IRI) is collaborating with several levels of government and various local and foreign researchers in several key disciplines to help in the development of policies, tools and capacities to respond to the problems of rural drought and water management in the state of Ceara, Brazil. Climate prediction is a key component among the collaborations. The IRI and FUNCEME have developed a climate dynamical downscaling prediction system over Northeast Brazil. The NCEP RSM and ECHAM AGCM is the core of this prediction system. SST forecasts are produced first, which then serve as the lower boundary condition forcing for the NCEP RSM - ECHAM4.5 AGCM nested system.

A number of simulations were performed to obtain the optimum horizontal resolution and the size of computational domain of RSM. With observed SSTs as boundary forcing, an ensemble of ten runs of NCEP RSM - ECHAM4.5 AGCM nested system was done for the period of 1971-2000. The skill estimates obtained from this sort of hindcasting are considered as upper limit of forecast skills. A number of statistical tools are used to correct the systematic and conditional biases in the post-processing of model forecasts. Compared with GCMs forecasts, the added benefit of downscaling forecasts is clearly demonstrated.